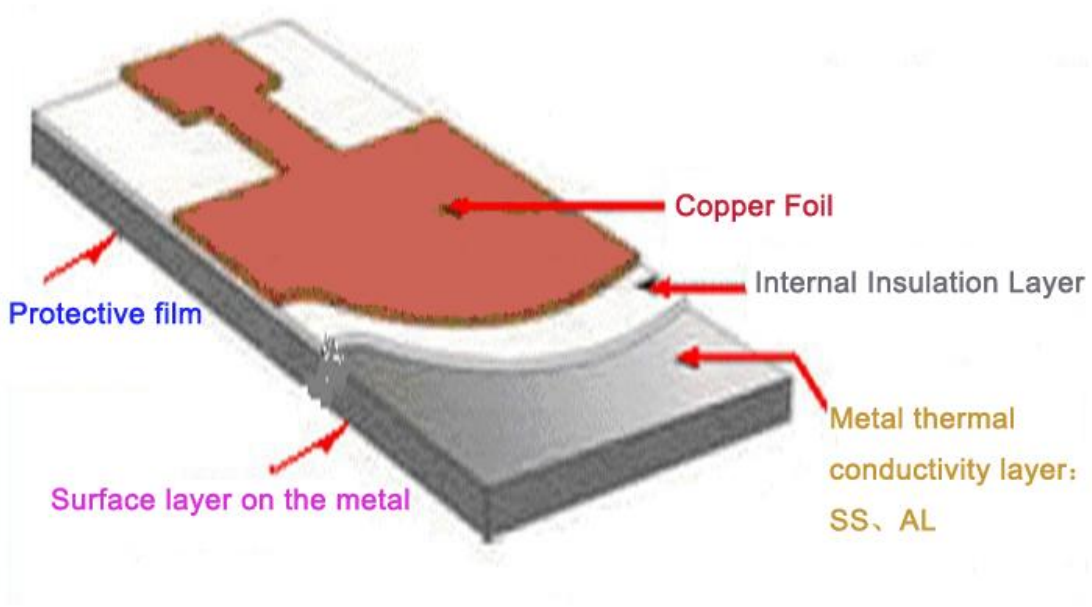
## AL Copper Clad Laminate

HFI Al Copper Clad Laminates is one of the important branch in the industrial electronic material. Generally it can be divided into different two categories according to its internal insulation layer structure : glass cloth and pure glue (non-glass cloth). The products from our company are just produced according to the two different structure to meet the different requirements of different the market.widely used in the fields of audio and power equipments, power LED, telecommunication, OA, power module, etc.




The above is the typical structure presentation of Al Copper Clad Laminates, Our company had successfully study out the thermal conductive materials with the low thermal resistance and high thermal conductivity through the research of resin formulation.

The HFI-IMS series is characterized by high heat transfer capability with the following character

- Excellent heat dissipation characteristics
- Good dimension stability, high strength and easy machinery cutting
- Good electric magnetic shield

AL CCL TECHNICAL INFRORMATION
(Specimen Al CCL thickness:1.50mm 1/0 copper foil)

| Item | Test method | Unit | HFI-IMS 1 | | HFI-IMS 2 | | HFI-IMS 3 | |
|---|---|---|---|---|---|---|---|---|
| | | | 75um | 100um | 75um | 100um | 75um | 100um |
| Thermal conductivity | ISO22007-2 | w/m*k | 1.02 | | 1.96 | | 2.86 | |
| Thermal resistance | Internal-TO220 | ℃/W | 0.70 | 0.80 | 0.42 | 0.48 | 0.35 | 0.38 |
| Thermal impedance | ISO22007-2 | ℃*in2/W | 0.105 | 0.120 | 0.076 | 0.085 | 0.050 | 0.070 |
| Tg (DSC) | TM650 | ℃ | 130 | | 120 | | 120 | |
| Td(TGA) | TM650 | ℃ | 332 | 330 | 355 | 360 | 350 | 358 |
| Thermal stress (288 ℃ solder dip) | TM650 2.4.13.1 | min | 2 | | 3 | | 3 | |
| Hi pot withstand | TM650-2.5.7 | Volts | 2000 | 2500 | 2000 | 2500 | 1800 | 2000 |
| Dielectric strength | TM650-2.5.6.2 | V/mil | 750 | | 750 | | 450 | |
| Dk (1MHz) | TM650-2.5.5.3 | -- | 4.90 | | 4.92 | | 4.80 | |
| Df (1MHz) | TM650-2.5.5.3 | -- | 0.025 | | 0.020 | | 0.018 | |
| Volume Resistance | A | $10^7$ MΩ-m | 55 | | 58 | | 45 | |
| | E-24/125 | | 3.8 | | 4.6 | | 5.7 | |
| Surface Resistance | A | $10^6$MΩ | 39 | | 45 | | 60 | |
| | E-24/125 | | 4.6 | | 6.5 | | 5.2 | |
| CTI | IEC60112 | Volts | 200 | | 400 | | 600 | |
| Peel strength | TM650-2.4.8 | Lb/in | 8.0 | | 7.0 | | 6.5 | |
| Water absorption | TM650-2.6.2.1 | % | 0.15 | 0.16 | 0.16 | 0.18 | 0.20 | 0.22 |
| Flammability | UL-94 | - | V0 | | V0 | | V0 | |

HFI-IMS 1 Common modified resin and common thermal conductivity (halogen and halogen free)，
HFI-IMS 2 Halogen free materials with high thermal conductivity，
HFI-IMS 3 High thermal conductivity materials ( non-glass cloth, Halogen free)

AL CCL detail information for purchasing

| Item | Size |
|---|---|
| Standard size （ mm) | 500X1200, 1000x1200 |
| ED copper foil | H,1,2,3oz |
| Thickness of insulation layer（μm） | 75,100 |
| Thickness （mm) | 1.0,1.2,1.5,2.0 |
| Type of protective film | PI,PET (standard film is PET） |

Other sheet size and thickness could be available upon request.

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